

**BEST AVAILABLE COPY****IN THE CLAIMS**

1. (Previously Presented) A dehydroxylated mesoporous silica film prepared from a surfactant containing solution, having a dielectric constant less than 3 that has both a relative stability, wherein a dielectric constant increases no more than approximately 20% when the film is taken from an equilibrated condition of 0.0% relative humidity or vacuum to an equilibrated condition of 50% relative humidity, and an absolute stability, wherein the dielectric constant remains less than 3 under any conditions including humid conditions of at least 40% relative humidity, a film thickness from about 0.1  $\mu\text{m}$  to about 1.5  $\mu\text{m}$ , and an average pore diameter less than or equal to about 20 nm, and having a disordered porosity, lacking a regular geometric arrangement of pores, and characterized by an absence of an x-ray diffraction peak in the range from 2-6 degrees 2-theta.

2. (Previously Presented) The mesoporous silica film as recited in claim 1, wherein said average pore diameter is less than or equal to about 10 nm.

3. (Previously Presented) The mesoporous silica film as recited in claim 1, wherein said thickness has a standard deviation less than +/- 5%.

4. (canceled)

Claims 5 – 52 are cancelled.

53. (currently amended) A mesoporous silica film characterized by:  
a disordered porosity, lacking a regular geometric arrangement of pores, and  
characterized by an ~~x-ray diffraction peak between about 0.75 and about 2 degrees 2-theta or~~  
~~by the~~ absences of an x-ray diffraction peak in the range of 2-6 degrees 2-theta;

a dielectric constant less than 3.0 that is stable, wherein a stable film has at least one of either relative stability, wherein a dielectric constant increases no more than approximately 20% when the film is taken from an equilibrated condition of 0.0% relative humidity or vacuum to an equilibrated condition of 50% relative humidity, or absolute stability, wherein the dielectric constant remains less than 3 under any conditions including humid conditions of at least 40% relative humidity;

a film thickness from about 0.1  $\mu\text{m}$  to about 1.5  $\mu\text{m}$ ; and  
an average pore diameter less than or equal to about 20 nm.

54. (Canceled)

55. (Previously Presented) A surfactant-templated mesoporous dielectric film on a substrate prepared by evaporation from silica precursors having greater than eight carbon atoms for every one silica atom and a surfactant wherein such film is characterized by:

a dielectric constant less than 3.0 that is stable, wherein a stable film has at least one of either relative stability, wherein a dielectric constant increases no more than approximately 20% when the film is taken from an equilibrated condition of 0.0% relative humidity or vacuum to an equilibrated condition of 50% relative humidity, or absolute stability, wherein the dielectric constant remains less than 3 under any conditions including humid conditions of at least 40% relative humidity;

a film thickness from about 0.1  $\mu\text{m}$  to about 1.5  $\mu\text{m}$ ; and  
an average pore diameter less than or equal to about 20 nm.

57-74 are cancelled.

75. (currently amended) A surfactant-templated mesoporous dielectric film on a substrate prepared from a silica precursor solution by evaporation, wherein the film is characterized by disordered porosity, lacking a regular geometric arrangement of pores, and characterized by an ~~x-ray diffraction peak between about 0.75 and about 2 degrees 2-theta or~~ by the absences of an x-ray diffraction peak in the range of 2-6 degrees 2-theta;.

76. (Previously Presented) The dielectric film of claim 75, wherein the silica precursor solution includes one or more of methyl and ethyl groups.

77. (Previously Presented) The dielectric film of claim 75, wherein the silica precursor solution includes one or more of alkyl and phenyl groups.

78. (Previously Presented) The dielectric film having disordered porosity of claim 75, wherein the silica precursor solution includes carbon-containing groups.

- 79. (Canceled)
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